NAME:………………………………………………………………………….ADM:…………….CLASS:………

**BIOLOGY PAPER 1**

**FORM 4**

**END TERM 1, 2023**

**TIME: 2HRS**

**INSTRUCTION: Answer all questions in the spaces provided after the question.**

1. (a) Explain why a person discharges urine more frequency when environmental temperatures are lower than when they are high. (2mks)

(b) Name the nitrogenous waste product excreted by a fresh water fish. (1mk)

1. Explain how the xylem vessels are adapted to their functions. (3mks)
2. State three evidences of organic evolution (3mks)
3. In an experiment, it was found that when maggots are exposed to light, they move to the dark areas.
4. Name the type of response exhibited by the maggots. (1mk)
5. State the survival value of the response in (a) above. (1mk)
6. (a) What is meant by oxygen debt. (2mks)

(b) State one factor that affects basal metabolic rate. (1mk)

1. Explain what would happen to red blood cells when they are placed in hypotonic solution. (3mks)
2. State the organelle that perform the following functions. (3mks)
3. Synthesis of ribosomes
4. Transport of lipids
5. Package and transport of gloco-proteins
6. What are structural units of lipids. (2mks)
7. (a) State the major factor in the ‘Global warming” experienced in the world today. (1mk)

(b) Suggest the ways of reducing the global warming (2mks)

1. State the role of the following in Homeostasis. (2mks)
2. ADH:………………………………………………………………
3. Aldosterone………………………………………….
4. Explain why cells of an endosperm are triploid and not haploid. (2mks)
5. State four ways in which respiratory surfaces are suited to their functions (4mks)
6. State three structural modifications of nephrons found in desert mammals. (3mks)
7. How would you find out from a sample of urine whether a person is suffering from diabetes mellitus. (3mks)
8. What are the advantages of fruit and seed disposal (2mks)
9. The diagram below represents a set-up that was used to investigate a certain process in a plant.

Sunlight gas

 test tube



 elodea

1. What was the aim of the experiment? (1mk)
2. Name the gas collected in the gas jar. (1mk)
3. What is the confirmation test for the gas in (b) above? (1mk)
4. State two factors that would affect the process. (2mks)
5. Name the antigens that determine human blood group. (2mks)
6. a) Explain why pepsin in stomach of man is secreted in inactive form (1mk)

b) Which gland secretes pepsinogen? (1mk)

1. The graph below represents its growth of animals in a certain phylum.

 Mass (g)

 W

 X

 Time (days)

1. Name the type of growth pattern shown on the graph. (1mk)
2. Identify the process represented by x. (1mk)
3. Name the hormone responsible for the process in (b) above. (1mk)
4. A student smeared Vaseline jelly on the lower epidermis of a leaf of a potted green plant which had been kept in the dark for 24hrs. She then transferred the plant to the light for six hours starch test on the leaf of the plant were negative. Account for the observation. (3mks)
5. State the three different types of blood cells. (3mks)
6. The following cell are found in living organisms.
7. Identify the parts labeled V and U. (2mks)
8. State the function of part labeled S. (1mk)
9. State one cell organelle which is most abundant in the structure and explain its role. (2mks)
10. a)) Explain briefly Lamarck’s theory of evolution. (2mks)

b)State a reason why Lamarck’s theory of evolution has been disapproved by scientists. (1mk)

1. Below is an equation showing the aerobic breakdown of fat.

2C51H98O6+145O2Energy + 102CO2 + 98H2O.

Calculate the respiratory quotient of the breakdown above. (2mks)

1. (a) What are vestigial structures? (1mk)
2. Give two examples of vestigial structures found in man. (2mks)
3. Give two limitations of fossil records as evidence of evolution. (2mks)
4. The diagram below illustrates a physiological process that occurs in the alimentary canal of man.

 Q Fat droplets

1. Name the process Q above. (1mk)
2. Explain the biological importance of the above process. (1mk)
3. Name the substance that helps the process name in (a) above (1mk)
4. List 3 features that make man the most dominant species on earth. (3mks)